

## CLAIMS

What is claimed is:

1. A computer readable medium containing program instructions for establishing a connection between a client system and a network, the program instructions for:

- 5 (a) collecting real time connectivity information by the client system; and  
(b) utilizing the real time connectivity information by the client system to establish a connection with the network.

2. The computer readable medium of claim 1 further comprising:

- 10 (c) utilizing data from a local persistent knowledgebase to establish a connection to the network.

3. The computer readable medium of claim 1 further comprising:

- 15 (d) utilizing data from a server based database to establish a connection to the network.

4. The computer readable medium of claim 1, wherein the collecting instruction

(a) further includes:

- 20 (a1) monitoring and collecting network traffic in real time;  
(a2) assigning a weight to the real time network traffic based on popularity;  
and  
(a3) creating a weighted list from the weighted real time network traffic.

5. The computer readable medium of claim 4 further comprising the instruction

for:

- (c) storing the weighted list in the client system.

6. The computer readable medium of claim 5, wherein the local persistent  
5 knowledgebase is stored in the client system.

7. The computer readable medium of claim 1 further comprising:

- (c) utilizing a set of local rules to establish a connection to the network.

10 8. The computer readable medium of claim 1, wherein the utilizing instruction (b) includes:

- (b1) detecting a failed connection;
- (b2) determining a cause of the failed connection by the client system;
- (b3) generating a solution based on the cause and the real time connectivity

15 information; and

- (b4) implementing the solution.

9. The computer readable medium of claim 8, wherein the determining instruction  
(b2) includes:

- 20 (b2i) analyzing at least one error message associated with the failed  
connection; and

(b2ii) auditing a plurality of communication devices in the client to  
determine which of the plurality of communication devices is a potential

candidate for connectivity.

10. The computer readable medium of claim 8, wherein the generating instruction (b3) includes:

5 (b3i) analyzing the real time connectivity information to determine a range of IP addresses assigned by a DHCP server;

(b3ii) generating a plurality of IP addresses within the range;

(b3iii) selecting one of the plurality of IP addresses and determining whether it is in use; and

10 (b3iv) assigning the one IP address to the client system if the one IP address is not in use.

11. The computer readable medium of claim 8 wherein the utilizing instruction (b) includes:

15 (b5) repeating step (b3) for a next solution if the implementation of a previous solution is unsuccessful.

12. A computer system coupled to a network comprising:  
at least one network adapter for monitoring and collecting real time connectivity information from the network;

20 memory for storing the real time connectivity information; and  
a processor coupled to the memory and to the at least one network adapter, wherein the processor is configured to execute program instructions for utilizing the real time connectivity information to repair a failed network connection between the computer system and the

network.

13. The computer system of claim 12, wherein the program instructions further comprises assigning a weight to the real time connectivity information based on popularity and  
5 creating a weighted list from the weighted real time connectivity information.

14. The computer system of claim 12, wherein the processor is configured to invoke an inference engine for determining a cause of a failed connection between the computer system and the network and for generating a solution based on the cause utilizing the  
10 real time connectivity information.